

## CLAIMS

1. An apparatus for controlling a pose of a three-dimensional object including one or more interconnected elements, comprising:
  - means for specifying a first control object having a first pose in three dimensions, and a second control object having a second pose in three dimensions;
  - means for defining a path associated with the first and second poses;
  - means for generating position and direction information for each of the one or more interconnected elements in three dimensions along the defined path; and
  - means for determining an amount of roll for each of the one or more interconnected elements using quaternion interpolation between the first pose and the second pose.
2. The apparatus of claim 1, wherein the one or more interconnected elements defines a spine of the three-dimensional object.
3. The apparatus of claim 1, wherein the quaternion interpolation permits a determination of a rotation greater than 180 degrees.
4. A method for controlling a pose of a three-dimensional object including one or more interconnected elements, comprising:
  - receiving data describing a first pose of a first control object in three dimensions, and a second pose of a second control object in three dimensions;
  - specifying a path associated with the first and second poses;
  - determining position and direction information for each of the one or more interconnected elements in three dimensions along the defined path; and
  - determining an amount of roll for each of the one or more interconnected elements using quaternion interpolation between the first pose and the second pose.
5. The method of claim 4, wherein the one or more interconnected elements defines a spine of the three-dimensional object.

6. The method of claim 4, wherein the quaternion interpolation permits a determination of a rotation greater than 180 degrees.